HAER No. HI-35

U.S. Naval Base, Pearl Harbor, Wharf S-20
(U.S. Naval Base, Pearl Harbor, Naval Submarine Base)
Hurt Avenue at the Northwest Side of Magazine Loch
Pearl Harbor
Honolulu County
Hawaii

HAER
HI
2-PEHA,
73-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California

HAER
HI
2-PEHA
73-

HISTORIC AMERICAN ENGINEERING RECORD

U.S. Naval Base, Pearl Harbor, Wharf S-20
(U.S. Naval Base, Pearl Harbor, Naval Submarine Base)

HAER No. HI-35

Location: U.S. Naval Base, Pearl Harbor, Wharf S-20
(U.S. Naval Base, Pearl Harbor, Naval Submarine Base)
Hurt Avenue at the Northwest Side of Magazine Loch
Pearl Harbor
Honolulu County
Hawaii

USGS Pearl Harbor Quadrangle, Hawaii
7.5 minutes series (orthophotoquad)
Universal Transverse Mercator coordinates
4.609280.2362540 (Scale 1:24,000)

Date of Construction: 1944

Present Owner: U.S. Naval Submarine Base

Present Use: Wharf S-20 is a general-purpose berthing wharf facility. Currently, Wharf S-20 is used to berth AFDM-6 Floating Drydock and HANAHALE Floating Barge (an administrative facility).

Significance: The Naval Base at Pearl Harbor was designated as a National Historic Landmark in 1964, due to the crucial role it played in the Nation's defense during the twentieth century and the calamitous events which occurred on December 7, 1941. As a Category 3 historic structure, it has been determined that Wharf S-20 functioned as part of the Pearl Harbor Naval Base, and is only of minor importance to the historic character of the National Historic Landmark.

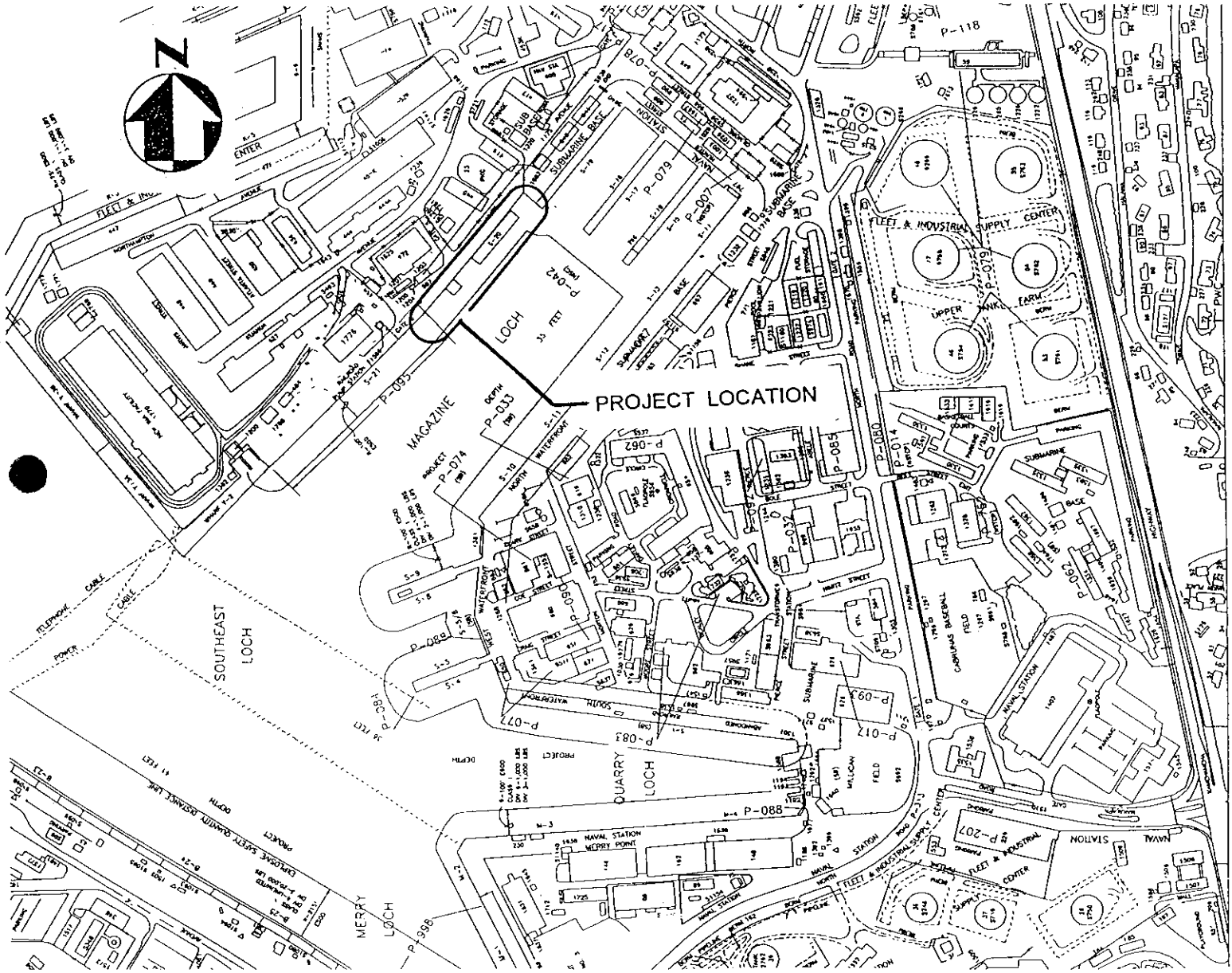
Report Prepared by: Warren Yap, Architect
Navy Public Work Center
Project Development Branch
Pearl Harbor, Hawaii 96860-5470

Date: December 1996

I. DESCRIPTION: Wharf S-20 is constructed of reinforced concrete deck, bents, beams and piles, and has a wood fender system along the entire length of the wharf. Wharf S-20 is 45 feet wide and 551 feet long with an area of 2755 square yards, and average about 8 feet above the water surface. The structural framing consists of a reinforced concrete slab (thickness varies from 10 inches to 27 inches) and 24-inch wide by 36-inch deep reinforced concrete bents spaced at 12 feet on centers. The wharf is supported by 18-inch square reinforced concrete piles of 40 ton capacity.

II. HISTORY: The Naval Base at Pearl Harbor was designated as a National Historic Landmark in 1964, due to the crucial role it played in the Nation's defense during the twentieth century and the calamitous events which occurred on December 7, 1941. As a Category 3 historic structure, it has been determined that Wharf S-20, which was built in 1944, functioned as part of the Pearl Harbor Naval Base, and is only of minor importance to the historic character of the National Historic Landmark. Special Project C18-86 "DREDGING FDM-6" was initiated in 1989 and has been completed. The project deepened the operating basin in the vicinity of Wharf S-20 for the Medium Auxiliary Floating Drydock (AFDM-6) which is approximately 144 feet in width, 642 in length and 53 to 60 feet in height.

III. PROJECTS: Special Project RC4-86 "REPAIR AND UPGRADE WHARF S-20", proposes to repair the damaged and deteriorated concrete piles, caps, bents and beams, and the spalls and cracks on the deck throughout Wharves S-20 and S-21. The project also proposes to strengthen Wharf S-20 reinforced concrete bents by drilling 1" diameter holes into the transverse bents and inserting an epoxied reinforcing bars in place.



VICINITY MAP
NOT TO SCALE

U.S. NAVAL BASE, PEARL HARBOR, FLOATING DRYDOCK QUAY HAER No. HI-35
(U.S. Naval Base, Pearl Harbor, Naval Submarine Base)
(Wharf S-20)
(Facility No. S 20)
Hurt Avenue at the Northwest Side of Magazine Loch
Pearl Harbor
Honolulu County
Hawaii

ADDENDUM TO
U.S. NAVAL BASE, PEARL HARBOR, WHARF S-20
(U.S Naval Base, Pearl Harbor, Naval Submarine Base)
Hurt Avenue at the northwest side of Magazine Loch
Pearl Harbor
Honolulu County
Hawaii

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
U.S. Department of the Interior
National Park Service
Oakland, California

HISTORIC AMERICAN ENGINEERING RECORD

U.S. NAVAL BASE, PEARL HARBOR, FLOATING DRYDOCK QUAY
(U.S. Naval Base, Pearl Harbor, Naval Submarine Base)
(U.S. Naval Base, Pearl Harbor, Wharf S-20)
(Facility No. S 20)

Addendum to:
HAER HI-35
U.S. NAVAL BASE, PEARL HARBOR, WHARF S-20
(U.S. Naval Base, Pearl Harbor, Naval Submarine Base)

The cover sheet and three data pages were previously submitted to the Library of Congress about 1998. The new record name reflects the historic name of the structure.

Location: Hurt Avenue at the northwest side of Magazine Loch
Pearl Harbor Naval Base
City and County of Honolulu
Hawaii

USGS 7.5 minute series topographic map, Pearl Harbor, HI, 1998.
Universal Transverse Mercator (UTM) coordinates:
04.609580.2362250
04.609620.2362230
04.609470.2362060
04.609430.2362100

Date of Construction: 1943

Present Owner: United States Navy

Present Occupant: United States Navy

Present Use: Berthing of U.S. Navy vessels

Significance: This Floating Drydock Quay (Facility No. S 20) is significant for its association with the submarine war in the Pacific during World War II as an important overhaul and maintenance site for submarines. Facility No. S 20 is a contributing structure to the Pearl Harbor National Historic Landmark, designated in 1964. It is also significant for its association with Cold War submarine operations, as a servicing wharf for the submarine fleet.

Report prepared by: Dee Ruzicka
Architectural Historian
Mason Architects, Inc.
119 Merchant Street, Suite 501
Honolulu, HI 96813

Date: April 2009

PART I. DESCRIPTION

Facility No. S 20 is a reinforced-concrete quay supported by reinforced-concrete piles, one of the 12 berths which surround three sides of Magazine Loch in Pearl Harbor. Facility No. S 20, at the northwest side of the loch, is "L" shaped in plan, with a right-angle turn at its northeastern end. It is 45'-0" wide with an overall length of 596'-0". This overall length includes the 551'-0" length of the longer section and the 45'-0" width of the right-angle shorter section (which is 88'-6" long). The deck of this quay is about 8' above the water. At its northeastern end, the shorter section of the Facility No. S 20 quay abuts the end of Facility No. S 19 at a right angle. At its southwest end, Facility No. S 20 has an extension (Facility No. S 21), which angles about five degrees from a straight line (NAVFAC PAC 1943, dwg Z-N15-223).

The deck of Facility No. S 20 originally carried tracks for a narrow-gauge (3'-0") train and for a 28'-2¾" gauge 25-ton gantry crane; the gantry crane tracks (spacing of 28'-2¾" between gantry rails) straddled the narrow-gauge train tracks. Piles, in groups of two and three, were specified to be located below the area of the deck that carried the rails to better distribute the weight. The typical thickness of the reinforced concrete deck of the quay is 10", but at areas under the rails and over the piles, the deck thickness ranges from 1'-6" to 2'-0" (NAVFAC PAC 1943, dwg Z-N15-233).

The reinforced concrete piles (approximately 1'-6" square with beveled corners) that support the deck are arranged in four rows along the length of the quay. In the longer section of the quay the outboard row consists of pairs of piles, spaced 6'-0" on center. These pairs are oriented perpendicular to the length of the quay with 1'-0" space between the piles. The closest face of the pile pair is set back about 6' from the outboard edge of wharf (not including fenders). Centered in the concrete deck above these piles is a channel for one rail of the gantry crane. The second row of piles has groups of three that are spaced 12'-0" on center along the length of Facility No. S 20. These groups of three piles are oriented longitudinally to the quay, aligned about 12' inboard from the inner face of the paired outer row. The middle pile in these groups of three is battered, with a 4:12 slope toward the outboard side of the quay. Straddling this row of piles are the two channels for the rails of the narrow-gauge train tracks. The third row of piles is identical to the previous row, with a spacing of 14'-1⅜" between these rows. Above this third row of piles is the channel for the inboard rail of the gantry crane. The fourth row of piles is aligned 7'-0¼" inboard of the center of the previous row. The center of this row of single piles is aligned 2'-0" from the inboard edge of the quay. The piles of this row are generally spaced 12'-0" on center along the length of Facility No. S 20, but at the location of manholes, there are additional piles, more closely spaced. The channels for the crane tracks have been filled with concrete, level to the deck; the channels for the train tracks have been filled with asphalt, and portions of the train tracks are visible where the asphalt is depressed.

In the shorter section of the quay (the right-angle section connecting it to Facility No. S 19), there are similarly four rows of piles, but the groupings and spacing are different, because there are no rails to support ((NAVFAC PAC 1943, dwg Z-N15-230). The outboard row has single piles, spaced 6'-0" on center. The center of this row is set back 7'-0" from the water edge of the quay. The other three rows of piles are generally spaced in a 12'-0" square grid, except at their southeast end, where the piles align with the outboard row in Facility No. S 19. The second and third rows have two-pile, rather than three-pile, groupings, with one battered pile in each pair.

There is about 1'-6" of space between the battered and vertical pile pairs. The fourth row has single vertical piles, aligned with the vertical piles in rows two and three.

There are timber fenders along portions of Facility No. S 20. Under the deck are utility lines, with varying types of access covers in the deck, and outlets for the lines at the harbor-side curb. The original drawings mention outlets for high- and low-pressure air; for salt, fresh, and distilled water; for diesel oil and two types of lubricating oil; for telephone; as well as for alternating current (A.C.) and direct current (D.C.) electricity lines. The appearance of the outlets and repair drawings indicate there has been modernization of the utility systems. The outlets with piping and valves that project above the curb are protected by a rectangular framework of large welded pipes. The existing cleats, double bitts, and bollards appear to be original, but due to later construction projects, not all remain.

Along the outboard side of Facility No. S 20, about 210' from the short right-angle portion that joins to Facility No. S 19, is an added section of quay about 180' in length that protrudes about 48' into the harbor, built for a medium auxiliary floating dry dock (AFDM), and called the AFDM Berthing Wharf (NAVFACPAC 1992, dwg 7482739). This section is constructed of reinforced concrete with a deck surface level with the rest of Facility No. S 20, about 8' above the water. It is supported on cylindrical concrete piles, each about 3'-0" in diameter which are spaced in three rows along the length of the AFDM Berthing Wharf. The first row is under the line where the AFDM Berthing Wharf abuts the main section of the quay. The second row of piles is located about 22' outboard of the first. The third row of piles is at the outboard edge of the AFDM Berthing Wharf, about 44' from the first row. The piles are arranged in bents transverse to the length spaced about 24' apart.

PART II. HISTORICAL CONTEXT

For additional information, including a short discussion on the establishment of the Submarine Base, see the report on the adjacent wharfs: HAER No. HI-84, U.S. Naval Base, Pearl Harbor, Additional Piers & Quay Walls, Berths S 13 to S 19. Also see an overview report: HAER No. HI-53, U.S. Naval Base, Pearl Harbor, Waterfront Facilities.

This quay was built in 1943, in order to accommodate a floating drydock for submarine repair. Extant original drawings are dated May 1943 and refer to this structure as a "Floating Drydock Quay" (NAVFACPAC 1943 dwgs Z-N15-214 through 267). The work was begun under contract NOy-4173 by Contractors, Pacific Naval Air Bases (CPNAB) a consortium of construction firms responsible for Navy projects (not just air bases) in the Pacific during the build-up to WWII and during its early years, until December 31, 1943 (U.S. Navy 1947, Vol. II, 121). Original drawings dated May 22, 1943 show the engineer of the project has initialed the drawing sheets with "C.H.C." and the consulting engineer, Clifford E. Paine, has signed the drawings (NAVFACPAC May 22, 1942 drwgs Z-N15-214 to Z-N15-266).

A Pearl Harbor map dated June 30, 1943 shows the designation S 20 was soon applied to this berthing space. Comparison of 1943 and 1941 Pearl Harbor maps indicates how the topography of Kuahua Peninsula was altered to accommodate the new waterfront facility (see historic photo on page 13 of this report). A projecting bluff of Kuahua was cut back and two buildings (Facilities. 415 and 440) were demolished (U.S. Navy, 14th Naval District 1941 and 1943). The irregular natural shoreline had to be cut back not only to accommodate the straight

lines of the new hardened shoreline, but because the quay and extension were set back from the line of Facility No. S 19 by about 88' – the length of the shorter portion of Facility No. S 20 at the right-angle turn. By November 6, 1942 core borings and test piles had been sunk along the existing shoreline (NAVFACPAC 1942, dwg 3481). At this time Facility No. S 20 was proposed to run straight from the end of Facility No. S 19, without the right-angle turn, but with the approximately five-degree angle at a point further north. However, the May 1943 drawings show the right-angle turn -- as the quay was built. Although the Navy database lists a 1944 date for this facility, a historic photo shows that Facility No. S 20 (and its extension, Facility No. S 21) was complete by December 12, 1943 (Furlong PPFUR 2-1).

Before this Floating Drydock Quay and extension were finished, two new buildings had been erected nearby. These were on land nearly level with the deck of the quays, at least eight feet lower than the original grade at the top of the Kuahua bluff. The ca. 1942 buildings were a District Maintenance Shop (Facility 472), and an arched-type splinterproof (resistant to shrapnel or "splinters") air raid shelter (later designated Facility 1202). A 1945 map shows that by the end of World War II, three splinterproof electrical stations and ten small temporary buildings (Facilities 46 through 55) had been added in the area between Kuahua Avenue and quays S 20 and S 21 (U. S. Navy, 14th Naval District 1943 & 1945). None of the WWII buildings remain, except for the electrical ones (Facility Nos. 484 and 485 are substations, and 493 is a transformer station). At least one of those temporary buildings had supported the operations at Facilities Nos. S 20 and S 21. The building list accompanying the 1945 map notes that Facility 47 was the "Sail 21 Office" (Sail was the Navy's phonetic alphabet word for the letter S during most of the early twentieth century). The functions of the other buildings in 1945 are listed as barracks, latrine, garbage house, lumber shed, storage shed, pipe fitting storage, welding and machine shop, dispatcher's office, and rigging shop. The last six and the three electrical buildings were all listed as associated with Shop 08, which was also the designation for the large District Maintenance Shop (Facility 472); this is an indication of the expanding workload and space requirements of such shops during WWII.

Unlike the temporary WWII buildings, the quays were permanent facilities that have been maintained and repaired over the decades since their construction. In 1965 steel sheet piling was installed along the inboard edge of Facility Nos. S 20 and S 21. This sheet pile was begun at the north end of Facility No. S 20 where the quay makes the right-angle turn to join with Facility No. S 19 and continued down the length of the two quays for a distance of about 1,368 lineal feet. The sheet piling was capped by a 1'-0" thick concrete pile cap (NAVFACPAC 1965, dwgs 1084165 to 1084169).

In 1972 dredging was undertaken at Facility No. S 20 to increase the depth of shoaled areas in the vicinity of the future AFDM berthing wharf (which was not yet built) to 40'. This dredged area began 12' from the edge of the quay and extended 100' into the waters of the harbor along 540' of the length of the quay, beginning 100' from the edge of the right-angle section at the north end of Facility No. S 20 (NAVFACPAC 1972, dwg 7003764). Additionally at this time the wood fender system was repaired. Timber piles 60' long were driven into the harbor bottom to replace broken or missing fender piles; new wooden blocks and wales were also installed where needed. According to plans, this 1972 work was done to accommodate the floating drydock ARD-30 (NAVFACPAC 1972, dwg 7003765).

Work on the fuel oil and lubricating oil lines that run beneath the deck of the wharf was done in 1967 and 1974. The 1967 work was replacement of piping, and in 1974 four large oil lines and

their hangers were removed (one 12"-, one 8"-, and two 6"-diameter lines) and a single 10"-diameter line was installed (NAVFACPAC 1967, dwg 1221747 and 1974, dwg 7008540).

The section of Facility No. S 20 which protrudes into the harbor, called the "AFDM berthing wharf" was constructed sometime between 1974 and 1981. The addition to the drydock quay, measuring approximately 180' x 48', appears on 1982 drawings that detail the repairs to the waterfront freshwater system (NAVFACPAC 1982, dwg 7047792). A smaller projection was also built at the south end of Facility No. S 20, at the point where the quay's extension begins (Facility No. S 21). This pier, approximately 30' wide and projecting about 50' into the harbor, was called the "AFDM Finger Pier." It, along with the added section of berthing wharf, provided secure mooring points for a floating drydock (AFDM-6) while allowing barges to be floated between the quay and the drydock (NAVFACPAC 1992, dwgs 7482737 and 7482738). This finger pier is no longer extant.

Floating Drydocks at Facility No. S 20

For an excellent history of the floating drydocks of WWII see the chapter on that topic in the book by the U.S Navy Bureau of Yards & Docks, *Building the Navy's Bases in World War II, History of the Bureau of Yards and Docks and the Civil Engineer Corps 1940-1946*. Washington D.C: U.S. Government Printing Office. 1947, Volume I, Chapter 9. For additional information on the functional relationship between the floating drydocks and the on-shore shop facilities compound at the Submarine Base, see Addendum to HABS No. HI-293, U.S. Naval Base, Pearl Harbor, Gymnasium Building, Submarine Base Building 667.

Floating drydocks were developed in the 1930s, of a "revolutionary design" that incorporated a ship-like structure with a contoured bow and faired stern; the floating drydock had a U-shaped trough to hold the ship that was to undergo repairs (U.S. Navy 1947, Vol, I, 209). The stern gate was hinged at the bottom and operated hydraulically to allow the entry of a stricken ship when the drydock was submerged. The hull of the drydock was strengthened to resist stresses when operating and when being towed at sea. The type of drydocks built during the 1940s called Auxiliary Repair Docks (ARD) were designed to repair destroyers and submarines, and other like-sized vessels. They were widely utilized during WWII and "proved among the most useful, flexible, and effective facilities supporting the combat fleet" (U.S. Navy 1947, Vol. I, 215). Admiral Nimitz was known to refer to the drydocks in the Pacific as his secret weapon (Bice 1999).

One of the earliest floating drydocks to be utilized at Facility No. S 20 was the Auxiliary Repair Dock, ARD 2. This vessel is shown berthed at this quay on a 1945 map of Magazine Loch (NARA II June 30, 1945, RG 71 # 1400-3-140 – see page 16 of this report). The ARD 2, completed in early 1942, was an enlarged version of an earlier (ca. 1934) experimental floating drydock, the ARD 1. ("ARD-3" 1936, and U.S. Navy 1947, Vol. I, 209-210). Eight ARD 2-class floating drydocks were built; these were each 486' long with a 71' beam and displaced 4,200 tons. Each vessel carried six officers and 125 enlisted men (Naval Vessel Register 2008).

Another floating drydock known to have been berthed at Facility No. S 20 and used to repair submarines is the ARD 29, named the USS *Arco* in 1967. The ARD 29 is shown berthed at this quay on a 1951 map of the base (NAVFACPAC 1951, dwg I-N1-321). The ARD 29 was built in 1944 at the Pacific Bridge Co. in Alameda California and was commissioned June 23, 1945. During the war and the early post war years, the vessel served at Guam and Okinawa until

being transferred to Pearl Harbor in 1946 where it remained until re-assigned to Guam in 1959. The ARD 29 was 491'-8" in length with a beam of 81'-0" and displaced 5,200 tons. It was one of at least sixteen ARD 12-class Auxiliary Repair Docks built for the Navy and was staffed by between fourteen and eighteen officers and chief petty officers and between sixty-two and eighty enlisted men (NavSource June 2005).

During the early 1970s the Auxiliary Repair Drydock ARD 30 was moored at Facility No. S 20 and used for the repair of submarines based at Pearl Harbor (NAVFACPAC 1972, dwg 7003765). The ARD 30 was another of the ARD 12-class floating drydocks with the same specifications as the ARD 29 (see above). The ARD 30 was commissioned in 1945 and was later named the USS *San Onofre*. During 1970 the *Sargo* spent 10 days in the floating dry dock ARD 30 to receive a patch on the hull at the No. 2 aft trim tank. The ARD 30 was berthed at S 20 during the early 1970s. Further information on the USS *Sargo* is found in HAER No. HI-84.

Another floating drydock that was stationed at Pearl Harbor for two periods between WWII and 1997 was the Auxiliary Floating Drydock, Medium, AFDM 6. During the early 1990s the AFDM 6 was moored at Facility No. S 20 (NAVFACPAC 1992, dwg 7482737). This vessel was built at the Everett Pacific Shipbuilding Co. in Everett, Washington in June 1944 as the Yard Floating Drydock (YFD) 62. It was re-designated the AFDM 6 in 1945 and named the USS *Competent* in 1979. This vessel was stationed at Pearl Harbor until about 1967 when in was transferred to Subic Bay, where it remained until it was overhauled in Guam ca. 1979-80 and subsequently transferred back to Pearl Harbor (Pike 2005). AFDM 6 was 522' in length with a beam of 124' and displaced 8,000 tons. The vessel was staffed by four officers and 146 enlisted men (NavSource April 2005).

PART III. SOURCES OF INFORMATION

A. Architectural Drawings and Maps:

Historic drawings, available as electronic scans only, were viewed on the Naval Facilities Engineering Command, Pacific (NAVFACPAC) Plan File data base at Building 258, Makalapa, Pearl Harbor. Scans can be viewed and printed on 11" x 17" paper only. Drawings for this facility are indexed under building number S 20. Historic maps of Pearl Harbor are also in the Plan File data base as well as in the Cartographic section, National Archives II, College Park Maryland.

B. Early Views:

Aerial photos of Magazine Loch are available at the Still Photo section, National Archives II, College Park Maryland, and at the Admiral Furlong Collection at the Hawaii State Archives. The photos of the Admiral Furlong Collection were taken under the direction of Admiral William R. Furlong, Commandant of the Pearl Harbor Navy Yard. They were taken during the early 1940s and are filed in Boxes PPFUR1, PPFUR 2, and PPFUR3. All historic photos in this report (except the field notes) were created by a federal agency (U.S. Navy) and are considered in the public domain.

C. Bibliography:

"ARD-3." *Time Magazine*, November 30, 1936. From website www.time.com/time/magazine/article/0,9171,757012,00 accessed on May 6, 2008.

Berry, Ralph. Photos of USS *Sargo* in floating drydock ARD 30. From website www.ssn583.com/ThisNThat/Yards accessed on March 3, 2008. Photos dated 1970.

Bice, Stanley J. "The Way it Was Back Then..." Website home.cshore.com/sbice/Oldpic accessed May 6, 2008. 1999.

Contractor Pacific Naval Air Bases (CPNAB). *Technical Report and Project History, Contracts NOy-3550 and NOy-4173.* Ca. 1943. Microfilm of report at library of Naval Facilities Engineering Command, Pacific.

de Yarmin, Ray W. *History of the Naval Submarine Base Pearl Harbor Hawaii*. Honolulu: Pacific Submarine Museum, 1984.

Hacking, Mike. Website www.ssn583.com on the USS *Sargo*. Accessed on March 3, 2008.

National Archives and Records Administration (NARA). Photos from collection. Various dates.

Naval Vessel Register. Website www.nvr.navy.mil/nvrservicecraft/c_ARD accessed on May 6, 2008.

NAVFACPAC, Plan File data base. Plans of Facility No. S 20 available on computer database at Facility No. 258, Makalapa, Pearl Harbor. Various dates.

NavSource Online. Website for ARD-29 www.navsource.org/archives/09/67/6729 accessed on February 25, 2008. June 2005.

_____. Website for AFDM-6 www.navsource.org/archives/09/28/2806 accessed on February 25, 2008. April 2005.

Pike, John. AFDM Auxiliary Floating Dry Dock, Medium. Website www.globalsecurity.org/military/systems/ship/afdm accessed on February 19, 2008. April 2005.

U.S Navy, Bureau of Yards & Docks, *Building the Navy's Bases in World War II, History of the Bureau of Yards and Docks and the Civil Engineer Corps 1940-1946. Vols. I and II*. Washington D.C.: U.S. Government Printing Office. 1947.

U.S. Navy, 14th Naval District. [Map of] Navy Yard, Pearl Harbor, T.H., June 30, 1941, numbered I-N1-144, filed under RG 71, 1400-3-106 at Cartographic Section, National Archives II, College Park, Maryland.

_____. [Map of] Navy Yard, Pearl Harbor, T.H., June 30, 1943, numbered I-N1-167, filed under RG 71, 1400-3-124 at Cartographic Section, National Archives II, College Park, Maryland. 1943.

_____. [Map of] U.S. Naval Base, Pearl Harbor, T.H., June 30, 1945, numbered I-N1-224, filed under RG 71, 1400-3-140 at Cartographic Section, National Archives II, College Park, Maryland. 1945.

_____. U.S. Naval Base, Pearl Harbor, T.H., Building List Accompanying 14th N.D. Drawing No. I-N1-224 [June 30, 1945], numbered I-N1-225, on Microfilm Roll 1042, Frame 64, at Cartographic Section, National Archives II, College Park, Maryland.

PART IV. PROJECT INFORMATION

This documentation is being undertaken as mitigation for the construction related to repairs, maintenance, and improvements to Facility No. S 20 in the Submarine Base area of the Pearl Harbor Naval Complex, within the boundaries of the Pearl Harbor National Historic Landmark. This report is to fulfill requirements stipulated by the March 2004 Programmatic Agreement between Commander, Navy Region Hawaii and the Hawaii State Historic Preservation Officer regarding waterfront maintenance and improvements.

Location Map

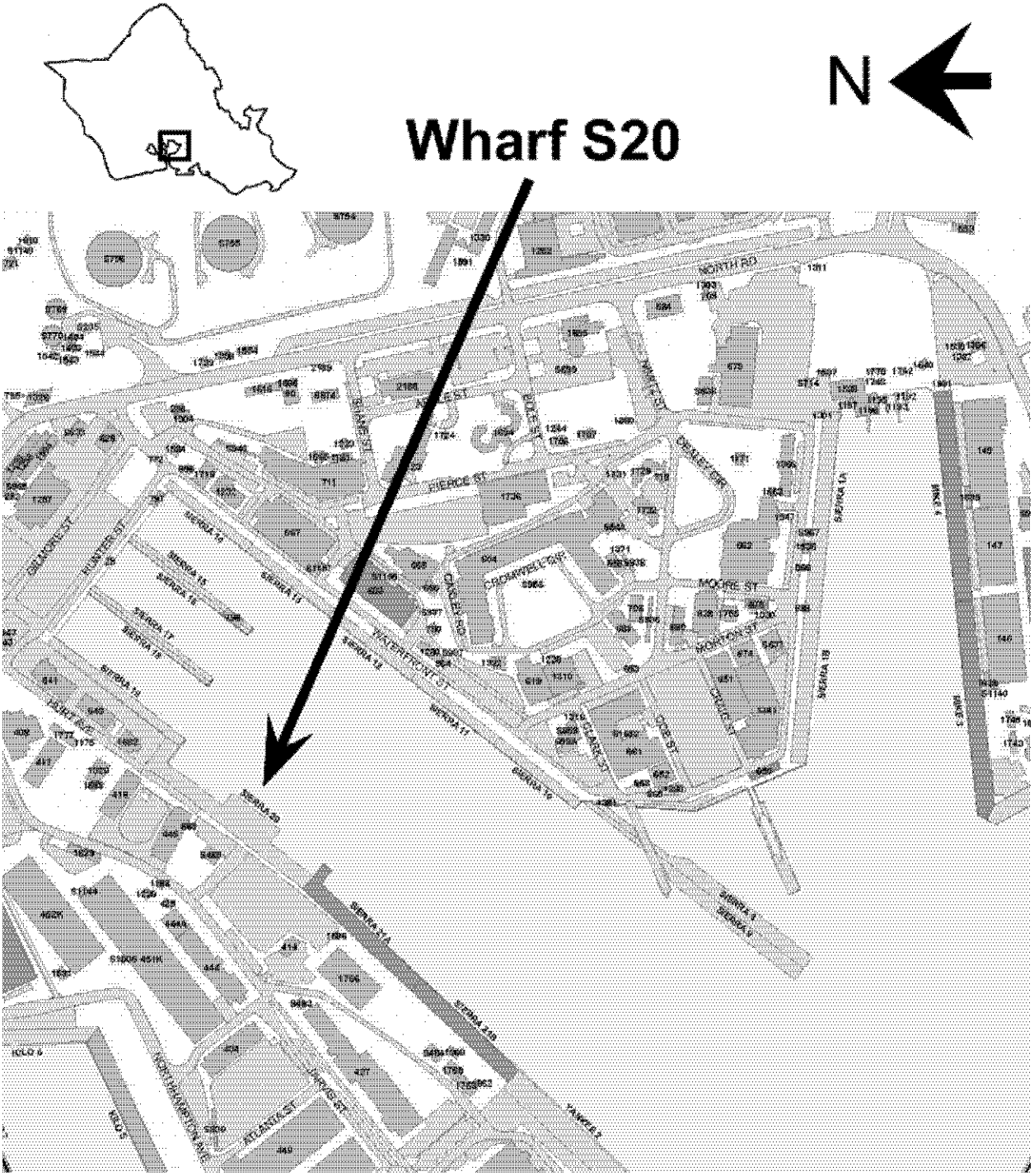


Photo dated May 17, 1943 showing the area of S20 after dredging and prior to construction. Note the excavation at the water's edge for the wharf. NARA photo #71 CB-103 F-13.